Space Weather Forecast

Issued on Monday, 27 May 2024 at 00:19 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: A risk of Moderate flares likely throughout, with the return of two previous large sunspots.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low solar activity. There are eight sunspot regions on the visible disk, five numbered with the most notable being AR3691 in the northeast. This moderately sized region as seen some ongoing slow development visible, most notable to its northeastern periphery and remains magnetically complex. Across the rest of the disc, the regions remain smaller and simpler.

No Earth-directed Coronal Mass Ejections (CMEs) were observed in available imagery.

Solar Wind / Geomagnetic Activity: Background to slightly elevated solar winds speeds were observed, varying between 350-450 km/s. The Interplanetary Magnetic Field (IMF), Bt, was generally weak, with the important north-south component, Bz, also weakly varying. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected, with isolated Moderate flares likely from the large sunspot in the northeast. The return the previously highly active sunspot AR3664 from a couple of weeks ago may also bring a risk of flares as it moves onto the southeast limb into the period.

Solar Wind / Geomagnetic Activity: A weak CME glance is possible early day 1 (27 May), although confidence is low. This is due to an eruption from the southeast disc on 23 May. Weak coronal hole sourced fast wind influences are also possible, most likely day 1 and into day 2 (27-28 May). Otherwise mainly background slow wind conditions are anticipated. Mainly Quiet geomagnetic activity is expected, perhaps rising to give spells of Unsettled to Active conditions at times.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	60	60
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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